# JOHO FOR YOUR BEST IMAGE

## **PIANO 3D 8"**



- Autostereoscopic 3D display: 2 view
- Barrier technology
- Diagonal screen size: 8 inch/ 20,32 cm
- Panel resolution: 1280x768 high resolution
- View digital photos slid show with Music
- Multi media play back
- Slide-show, zoom, rotate,...
- Calendar mode
- Stylish design
- Built-in speaker
- Supports: SD/SDHC/MMC/USB (Max. 32G)

Part. No.: P3D800

## PIANO 3D 8" Portable



- Autostereoscopic 3D display: 2 view
- Barrier technology
- Diagonal screen size: 8 inch/ 20,32 cm
- Panel resolution: 1280x768 high resolutions.
- View digital photos slid show with Music
- A/V out with 480i, 720P, 1080i
- 2 GB built in memory
- 2800mAh polymer battery, support 3hours playing
- Plug & play by USB 2.0 slot, support USB Flash drive, USB HOST.
- E-Book reading function
- Micro SD
- Clock / calendar / alarm function
- Integrated stereo speakers
- Full-function remote control included
- Music player
- Video player

Part. No.: P3D801



3D 23"



## Multi-view Lenticular Display Autostereoscopic 3D display: 28 view 3D Technology: fixed lenticular

- LCD panel type: TFT-LCD
- Panel Size: 23 inch/58.4 cm
- Aspect ratio: 16:9
- Optimum resolution: 1920 x 1080p
- Response time (typical): 5 ms
- Brightness: 300 cd/m<sup>2</sup>
- Contrast ratio (typical): 1000:1
- Pixel pitch: 0.265 x 0.265 mm 150° (H)/150° (V)
- Display colours: 16.7 M
- Scanning Frequency: 30–83 kHz (H)/56–75 Hz (V)
- Input format: 2D-plus-Depth in 3D mode

Part No.: P3D2328

3D 42"



#### Multi-view Lenticular Display

- Autostereoscopic 3D display: 28 view
- 3D Technology: fixed lenticular
- Diagonal screen size: 42 inch / 107 cm
- Panel resolution: 1920 x 1080p
- Brightness: 700 cd/m<sup>2</sup>
- Contrast ratio (typical): 1100:1 • Response time (typical): 9 ms
- Aspect ratio: 16:9
- 3D viewing angle (H/V): 15 0/150 degree
- Pixel pitch: 0.485 x 0.485
- Display colours: 1.06 Billion colours
- Input format: 2D-plus-Depth in 3D mode

Part No.: P3D4228

3D 55"



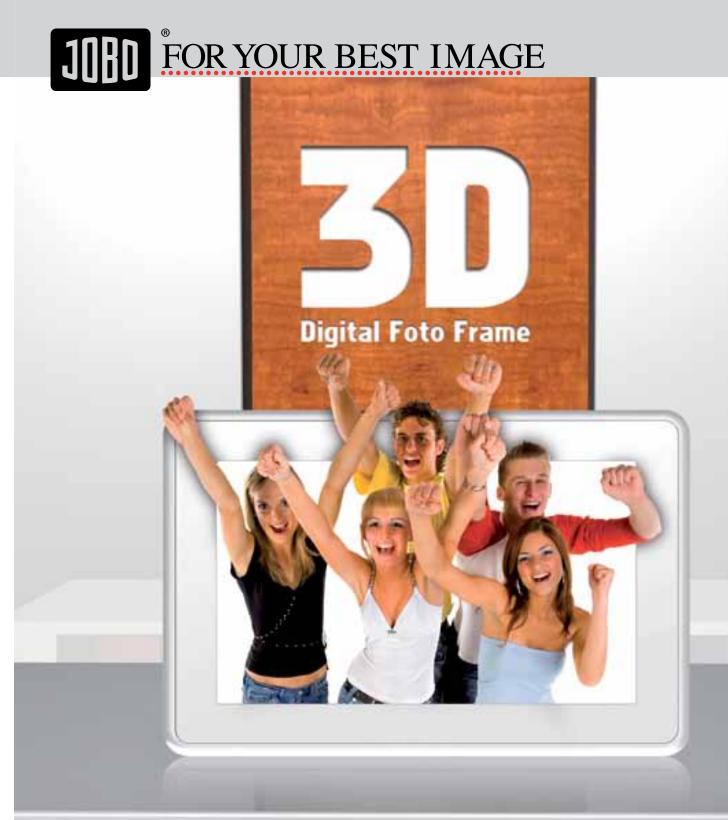
#### Multi-view Lenticular Display

- Autostereoscopic 3D display: 28 view
- 3D Technology: fixed lenticular
- Diagonal screen size: 55 inch / 140 cm
- Panel resolution: 1920 x 1080p
- Brightness: 700 cd/m<sup>2</sup>
- Contrast ratio (typical): 1300:1
- Response time (typical): 10 ms
- Aspect ratio: 16:9
- 3D viewing angle (H/V): 150 / 150 degree

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- Display colours: 1.06 Billion colours
- Display technology: 120 Hz Panel • Pixel pitch: 0.63 x 0.63 mm
- Input format: 2D-plus-Depth in 3D mode

Part No.: P3D5528



Experience your own photos as vivid and as close to reality as never before!

JOBO 3D Photo Displays bring your memories to life in convincing 3D - all without special glasses.

www.JOBO.com

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Who would want to miss out on one dimension in real life? - Get thrillingly vivid memories with the JOBO 3D photo frame – and no worries: you won't need special glasses for that! JOBO helps you to create Augmented Reality.

Hollywood can do 3D- but in real life? Without magic, but with lots of innovative technology JOBO achieves to produce stunning 3D effects either with 2-view technology on a 20,3 cm (8") 3D photo display in 1280x768 pixels or up to stunning 140 cm (55") 3D monitor in 1920 x 1080

### 3D reality:

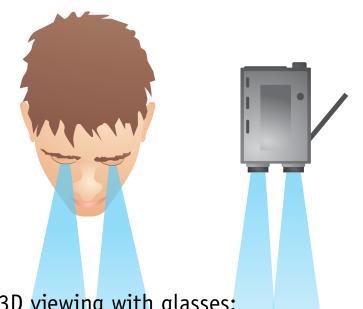
The ingeniously created human eyes allow us to perceive our surroundings with a real impression of depth. The human eyes are approximately 3,5 cm apart. The left eye captures an image of the surrounding (L) and the right eye as well (R). The human brain automatically calculates certain depth information by combining these images (L+R). This effect becomes drastically obvious to us if we close one eye while playing ping-pong. The intuitive depth information is lost when our brain has only one image to process (L or R).

### 3D image capture:

Several prominent market players have introduced 3D video capturing devices, or STEREO camcorders. These devices imitate the human view perception by installing two lenses in one camera (ideally 3,5 cm apart), thus capturing two images (L + R). The most advanced cameras do not only have a separate lense for each image (L+R), but also a separate chip-sensor. This allows maximum resolution for each image. Two full-HD movies are captured to create one 3D image. The most common recording is made in the so-called "side-by-side" format. The AVCHD format is also compatible to 3D stereoscopic movies files.

In addition to mechanical and optical STEREOrecording some professional movie makers apply

post-recording 3D processing with computer-aided calculations of 3D effects. This allows the depth information to run as smoothly and as close to reality as possible. Prominent example would be the Hollywood block-buster, Avatar. Even though great 3D capturing equipment can create stunning 3D is on everyone's lips since last year's IFA! Sure home-made 3D recordings, these will never quite match the effect of professional post-processing.



### 3D viewing with glasses:

Capturing two images of the same view (L+R) is no use if these two images cannot be played back separately for the left eye (L) and the right eye (R) at the same time.

To create an augmented reality effect in 3D on TV the established solutions require the user to use special glasses. One solution shows alternating images (L + R) within fractions of a second for left and right eye view. This requires strict synchronisation and the use of SHUTTER lenses. Even though the shutter lenses are costly the resolution of the 3D image encompasses the complete TV resolution.

The second technology applied uses POLARISES lenses. This allows the consumer to always see one separate image with each eye (L + R). These polarised glasses are quite cheap and do not require any synchronisation with the TV. The downside of this technology is that the TV resolution is split in two to constantly display two images at the same time (L+R).

## FOR YOUR BEST IMAGE

Even though the 3D experience with glasses is guite thrilling, the use of special glasses is somewhat cumbersome.

### 3D viewing WITHOUT glasses -

JOBO takes you one step further:

Imagine enjoying a stunning 3D effect completely without the use of special glasses. Watching our own 3D video or photo recordings, or 3D movies from youtube or from Hollywood – all without the hassle of wearing glasses you don't normally wear.

This is where JOBO comes in. JOBO is all about 3D playback. JOBO has spent considerate time and energy over the past 3 years studying the technological possibilities and frontiers of current research and product development in glasses-free 3D technology.

To perceive depth - each eye needs to see DIFFER-ENT perspectives of the same view simultaneously.

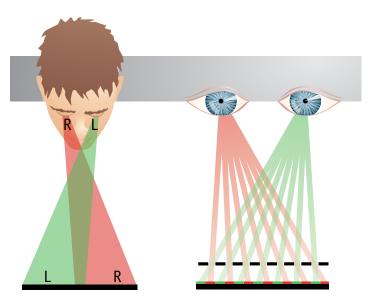
#### 2-View:

For a small display size the easiest solution is obvious: Play-back of 2 views (L+R) so that one image (L) can be seen only by the left eye and the other image (R) so that it can only be seen by the right eye.

To achieve this the display panel is created such that from one angle, e.g. vertical center will see both views (L+R) at the same time, so that the human brain automatically calculates and perceives the depth information.

This technology is called 2-VIEW. Looking at the display from the vertical center position the right eye can only see image R and the left eye only image L. The other image is barred for the other eye WITHIN the panel, hence the technology is called barrier technology. It is the most simple and most costefficient technology to be applied. The biggest disadvantage due to barring one view for one eye is the loss of "half" the brightness, as each eye only sees 50% of the brightness. At the same time the native resolution of the panel is also cut in half. Apart from the low costs the biggest and probably

more important advantage is that playback of the most popular 3D format (side-by-side) is immediately possible without the need of further transcoding. Exactly two views (recorded side-by-side) can be played back on the 2-VIEW JOBO 3D-frame. The 8" (20,3 cm) JOBO P3D800 with amazing 1280 x 768 pixel is the perfect solution for one person to enjoy a great 3D experience. The P3D800 is designed for stationary use with SD-slot and USB connection. For portable use JOBO has designed the P3D801 with built-in battery and internal memory. To maintain an ultra-slim size it is only equipped with micro-SD slot and micro USB.



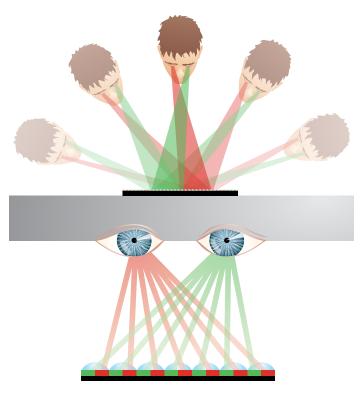
#### 5-View:

To enjoy a great 3D experience with several people the display design becomes a little more sophisticated. Contrary to the barrier technology that simply blocks the view from a certain angle within the display the 5-view effect is created by gluing a glass loup to a regular panel such that exactly above each single tiny pixel the image is diverted by a prism to a very specific angle.

Due to the Loup technology the 5-view solution takes away almost none of the display brightness. Of course the native panel resolution is split to create several views. The 5-view solution very quickly allows the eye to adjust to the 3D effect from different angles - not only from the vertical



center, but rather from 5 different angles. The only downside of 5-view technology (compared to 2-view) is the more limited compatibility, since it usually does not work to directly play-back the home made 3D recording from the SD-card instantly after the recording. The side-by-side recording must rather first be "transcoded" on a regular PC into a good 5-view format in order to create a perfect 3D experience.



#### Multi-View:

To maximise the 3D experience the most cuttingedge development of glasses-free technology is integrated into a TV-size Monitor in 23", 42", and even dazzling 55" size. 28 different views are created to perform the most sensational glasses-free 3D effect for both still 3D images or 3D movies. This solution will satisfy the most professional demands of 3D advertisement as much as it will appeal to the most demanding technology addict for private entertainment or gaming. We believe it is simply the best and most advanced 3D solution that can be created with today's technology.

#### Software conversion:

Together with leading High-Tech companies and their patented technologies JOBO also offers data conversion on the internet:

www.iobo.com/3D

We offer both automated data conversion, which calculates stunning 3D results for both 2 D photos into 3D photos, as well as data conversion of 2D movies into 3D movies. The output format can be chosen as side-by-side or 5-view or even multi-view.

Additionally to the automated 3D-conversion by advanced algorithms JOBO partners with specialists who can manually optimise 3D conversion (for video or photo) to satisfy even the most advanced demands.

3D is a fascinating world of augmented reality. Once you have seen what is possible you may never want to miss out on that 3rd dimension.

3D = a**DD** Depths to your digital life with JOBO.

The JOBO 3D displays in sizes 23", 42", 55" are using the Dimenco rendering core to create a stunning 3D picture enabling easy content creation, easiness of use and the ability to adjust all possible 3D settings. The ability to change the amount of depth, viewing distance and smooth cone transition is unique in the industry.

Go 3D with JOBO